

E1  
9/11/11  
1. (Three Times Amended) A stable soluble calcium phosphate complex comprising phosphopeptide-stabilized amorphous calcium fluoride phosphate, wherein said phosphopeptide includes the amino acid sequence Ser(P)-Ser(P)-Ser(P)-Glu-Glu (SEQ ID NO: 5) and said amorphous calcium fluoride phosphate is formed in alkaline conditions.

E2  
3. (Amended) A complex according to claim 1, wherein said amorphous calcium fluoride phosphate is of the approximate formula  $[Ca_3(PO_4)_{1.87}(HPO_4)_{0.2}(H_2O)_x]$ , wherein  $x \geq 1$ .

E3  
4. (Three Times Amended) A complex according to claim 1, wherein said phosphopeptide includes an amino acid sequence selected from the group consisting of:  
(SEQ ID NO: 1) Gln<sup>59</sup>-Met-Glu-Ala-Glu-Ser(P)-Ile-Ser(P)-Ser(P)-Ser(P)-Glu-Ile-Val-Pro-Asn-Ser(P)-Val-Glu-Gln-Lys<sup>79</sup>  $\alpha_{s1}$ (59-79);  
(SEQ ID NO: 2) Arg<sup>1</sup>-Glu-Leu-Glu-Glu-Leu-Asn-Val-Pro-Gly-Glu-Ile-Val-Glu-Ser(P)-Leu-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser-Ile-Thr-Arg<sup>25</sup>  $\beta$ (I-25);  
(SEQ ID NO: 3) Asn<sup>46</sup>-Ala-Asn-Glu-Glu-Glu-Tyr-Ser-Ile-Gly-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser(P)-Ala-Glu-Val-Ala-Thr-Glu-Glu-Val-Lys<sup>70</sup>  $\alpha_{s2}$ (46-70); and  
(SEQ ID NO: 4) Lys<sup>1</sup>-Asn-Thr-Met-Glu-His-Val-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser-Ile-Ile-Ser(P)-Gln-Glu-Thr-Tyr-Lys<sup>21</sup>  $\alpha_{s2}$ (1-21).

E4  
5. (Twice Amended) A complex according to claim 1, wherein said phosphopeptide includes the amino acid sequence (SEQ ID NO: 1):

Gln<sup>59</sup>-Met-Glu-Ala-Glu-Ser(P)-Ile-Ser(P)-Ser(P)-Ser(P)-Glu-Ile-Val-Pro-Asn-Ser(P)-Val-Glu-Gln-Lys<sup>79</sup>  $\alpha_{s1}$ (59-79).

E5  
6. (Twice Amended) A complex according to claim 1, wherein said alkaline conditions are pH of about 7.0 to about 9.0.

E6  
7. (Three Times Amended) A stable soluble calcium phosphate complex comprising phosphopeptide-stabilized amorphous calcium phosphate wherein said

*Pl conclude*  
phosphopeptide includes the amino acid sequence Ser(P)-Ser(P)-Ser(P)-Glu-Glu (SEQ ID NO: 5) and said amorphous calcium phosphate is formed in alkaline conditions.

*For*  
9. (Twice Amended) A complex according to claim 7, wherein said amorphous calcium fluoride phosphate is of the approximate formula  $[\text{Ca}_3(\text{PO}_4)_{1.87}(\text{HPO}_4)_{0.2}(\text{H}_2\text{O})_x]$ , wherein  $x \geq 1$ .

*ES*  
10. (Three Times Amended) A complex according to claim 7, wherein said phosphopeptide includes an amino acid sequence selected from the group consisting of:  
(SEQ ID NO: 1) Gln<sup>59</sup>-Met-Glu-Ala-Glu-Ser(P)-Ile-Ser(P)-Ser(P)-Ser(P)-Glu-Ile-Val-Pro-Asn-Ser(P)-Val-Glu-Gln-Lys<sup>79</sup> as1(59-79);  
(SEQ ID NO: 2) Arg1-Glu-Leu-Glu-Glu-Leu-Asn-Val-Pro-Gly-Glu-Ile-Val-Glu-Ser(P)-Leu-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser-Ile-Thr-Arg<sup>25</sup> b(1-25);  
(SEQ ID NO: 3) Asn<sup>46</sup>-Ala-Asn-Glu-Glu-Glu-Tyr-Ser-Ile-Gly-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser(P)-Ala-Glu-Val-Ala-Thr-Glu-Glu-Val-Lys<sup>70</sup> as2(46-70); and  
(SEQ ID NO: 4) Lys1-Asn-Thr-Met-Glu-His-Val-Ser(P)-Ser(P)-Ser(P)-Glu-Glu-Ser-Ile-Ile-Ser(P)-Gln-Glu-Thr-Tyr-Lys<sup>21</sup> as2(1-21).

11. (Three Times Amended) A complex according to claim 7, wherein said phosphopeptide includes the amino acid sequence (SEQ ID NO: 1):

Gln<sup>59</sup>-Met-Glu-Ala-Glu-Ser(P)-Ile-Ser(P)-Ser(P)-Ser(P)-Glu-Ile-Val-Pro-Asn-Ser(P)-Val-Glu-Gln-Lys<sup>79</sup>  $\alpha_{s1}$ (59-79).

*ES*  
15. (Three Times Amended) A method of producing a stable calcium phosphate complex comprising phosphopeptide-stabilized amorphous calcium phosphate wherein said phosphopeptide includes the amino acid sequence Ser(P)-Ser(P)-Ser(P)-Glu-Glu (SEQ ID NO: 5) and said amorphous calcium phosphate is formed in alkaline conditions comprising the steps of:

(i) obtaining an aqueous solution of a phosphopeptide which has a pH of above 7 up to about 9.0, wherein said phosphopeptide includes the amino acid sequence Ser(P)-Ser(P)-Ser(P)-Glu-Glu (SEQ ID NO: 5);

(ii) admixing the solution of step (i) with solutions comprising calcium, and inorganic phosphate and optionally fluoride at a pH of above 7 up to about 9.0;

- E9  
conclude
- (iii) filtering the mixture resulting from step (ii);
- (iv) drying the mixture of step (iii), and
- (v) isolating the stable calcium phosphate complex.

E10

25. (Three Time Amended) A method of inhibiting formation of dental caries or tooth decay comprising administering a complex according to claim 7 to the teeth or gums of a subject in need thereof.

E11

42. (Amended) A complex according to claim 7, which has the formula  $[(PP)(CP)_8]_n$ , wherein n is equal to or greater than 1, "PP" represents said phosphopeptide, and "CP" represents calcium phosphate.

43. (Amended) A complex according to claim 42, wherein n is 6.

E12

45. (Amended) The method of claim 44, wherein said condition is osteoporosis or osteomalacia.

46. (Amended) A composition useful for inhibiting cariogenesis, comprising a delivery vehicle and a complex according to claim 7 in an amount effective to inhibit cariogenesis.

47. (Amended) The composition of claim 46, wherein said delivery vehicle is a dentifrice selected from the group consisting of toothpaste, toothpowder, a liquid dentifrice, mouthwash, a troche, chewing gum, dental paste, gingival massage cream and a gargle tablets.

E13

49. (Amended) The composition according to claim 48, wherein said foodstuff is a dairy product.

Please add the following new claims:

E14  
9/1/85

50. (New) The complex according to claim 7, wherein said alkaline conditions are pH of about 7.0 to about 9.0.

51. (New) The complex according to claim 1, wherein said alkaline conditions are pH of about 9.0.

52. (New) The complex according to claim 7, wherein said alkaline conditions are pH of about 9.0.

53. (New) The method according to claim 15, wherein said alkaline conditions are pH of about 9.0.

54. (New) The composition according to claim 46, wherein the composition is at a pH from about 4.5 to about 9.

55. (New) The composition according to claim 48, wherein the composition is at a pH from about 4.5 to about 9.

56. (New) A composition useful for inhibiting cariogenesis, comprising a delivery vehicle and a complex according to claim 1 in an amount effective to inhibit cariogenesis.

57. (New) The composition of claim 56, wherein said delivery vehicle is a dentifrice selected from the group consisting of toothpaste, toothpowder, a liquid dentifrice, mouthwash, a troche, chewing gum, dental paste, gingival massage cream and a gargle tablets.

58. (New) A composition useful for inhibiting cariogenesis, comprising a foodstuff and a complex according to claim 1 in an amount effective to inhibit cariogenesis.

59. (New) The composition according to claim 58, wherein said foodstuff is a dairy product.

60. (New) The composition according to claim 56, wherein the composition is at a pH from about 4.5 to about 9.

61. (New) The composition according to claim 58, wherein the composition is at a pH from about 4.5 to about 9.